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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,280	11/26/2001	George M. Dougherty	07043-103001 /B01-106	8826

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BEYER WEAVER & THOMAS LLP
P.O. BOX 778
BERKELEY, CA 94704-0778

EXAMINER

ROCCHEGIANI, RENZO

ART UNIT PAPER NUMBER

2825

DATE MAILED: 09/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/994,280

Applicant(s)

DOUGHERTY, GEORGE M.

Examiner

Renzo N. Rocchegiani

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-19, 21-25 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-19, 21-25, 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 13-19, 21-25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,919,364 (Lebouitz et al.).

Lebouitz et al. disclose a filter structure comprising a polysilicon film with pores (col. 4, lines 35-50). The film is has a thickness that falls between 50 and 300 nm (col. 5, lines 33-40). The lateral dimensions of the pores may be 10 and 50 nm (col. 3, lines 15-17). Lebouitz et al. also disclose forming a structure layer underneath the filter structure. (col. 5, lines 64-67). Lebouitz et al. further disclose forming a sacrificial layer underneath the structure layer. (col. 4, lines 64-67, and col. 5, lines 1-3). The sacrificial layer is removed after the filter structure is formed. (col. 5, lines 45-53). A passageway through the substrate is formed. (col. 6, lines 50-55). The filter layer is formed over a low stress structure. (col. 9, lines 20-23).

It is Inherent that the filter layer has grain structures because the filter layer is polycrystalline silicon. Also, since the thickness and size of the pores disclosed in Lebouitz et al. match the sizes claimed, it is inherent that the other properties such as relationship of size of grain to thickness of layer will are also present.

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Lebouitz et al. do not disclose controlling the residual stress of the film so that it falls within the range of -50 to 50 mega-Pascals or -100 to 100 mega-Pascals.

It would have been obvious to one with ordinary skill in the specific art to control the residual stress so as to fall within the predetermined ranges, since it is well known in the art that the residual stress is correlated to the crystal structure which in turns affect the property of the material layer. Because the film formed in Lebouitz et al. has to be permeable the residual stress will necessarily fall within a specific range that would result in the film having permeable characteristics, thus because the art recognizes that the residual stress is a result effective variable, it would have been obvious to one with ordinary skill in the art discover the optimum value since it would only involve routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Response to Arguments

3. Applicant's arguments filed on June 18, 2003 have been fully considered but they are not persuasive. Applicant has amended the claims to define the film in terms of residual stress. While the examiner agrees with applicant that Lebouitz et al. do not discuss controlling the residual stress, the examiner disagrees that such limitation is not rendered obvious. As stated in the rejection, the effects residual stress has on crystal structures are well known in the art and the examiner opines that to result in a permeable film, the layer in Lebouitz et al. would have to maintain a controlled residual stress level. Thus, because the residual stress is seen as a result effective variable, it is deemed to be obvious to optimize. For these reasons the examiner has withdrawn the

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102 rejection and formulated an obviousness rejection. Because the new rejection was necessitated by the amendment, this action has been made final.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renzo Rocchegiani whose telephone number is (703) 308-5839. The examiner can normally be reached on Monday through Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the

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examiner's supervisor, Matthew Smith, can be reached at (703) 308-1323. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

RNR

August 26, 2003

C. Everhart
CARIDAD EVERHART
PRIMARY EXAMINER